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THE PRESENT STATUS OF LIVER FUNCTION TESTS*

WANN LANGSTON, M.D., F.A.C.P.
OKLAHOMA CITY

In recent years a great deal of thought has been given to the functions of the liver, with the result that much new information is at hand. A considerable literature has appeared. Numerous tests have been devised. Some misinformation has been given out. Harm may be done unless we pause to evaluate carefully the knowledge we now possess.

The liver is the largest gland in the body; it is a gland of multitudinous functions; its functions are intimately associated with the vital processes of metabolism; the liver has great reserve power; it possesses remarkable ability to regenerate; and finally it is inaccessible for direct observation, experimentation or clinical investigation.

FUNCTIONS OF THE LIVER

The functions of the liver may be summarized as follows:

It is the sole organ of bile excretion.

It is the only organ that forms and excretes bile salts.

It produces and eliminates cholesterol.

It has to do with iron metabolism.

It excretes various foreign substances, as dyes.

It posesses powerful detoxicating functions, destroying or rendering inert bacterial products from the intestinal canal.

It has to do with the formation of fibrinogen and helps to regulate coagulation of the blood.

It possesses the so-called preotopexique function, removing noxious proteins from the portal blood.

It is a storehouse for some of the fat taken in as a food.

It plays an important role in protein metabolism, probably the only site of urea formation.

It is the great storehouse for carbohydrates, delivering them to the various parts of the body upon call, thereby regulating the blood sugar level.

These various functions are unrelated to each other. Any one function may be impaired, or any combination. It is therefore, apparent that no one test can be devised that will indicate an impairment of every function. Because of the great reserve power a lesion must be dffuse, or, if circumscribed, must be very extensive, before any test will give a positive result. Hence, as in all other laboratory tests, negative findings are not conclusive.

I shall outline briefly a few of the many tests that have been recommended, and attempt to make a clinical application of them.

THE GLYCOGENIC FUNCTION

When carbohydrates are ingested they are broken down in the intestinal tract to monosaccharids and absorbed as such. The liver synthesizes this glucose to, and and stores it as, glycogen. When moderate amounts of carbohydrates are taken, the excess is rapidly removed from the circulating blood, and the blood sugar maintained at a normal level. When the glycogenic function of the liver is interfered with hyperglycemia follows the taking of sugars, and glucose appears in the urine. A number of tests have been tried to determine this derangement of glycogenic function. The so-called sugar tolerance test will show this, but a large number of other conditions will give a similar reaction, such as carcinoma, tuberculosis, hyperthyroidism, etc. A very simple test was described by Bauer of Vienna, namely, the galactose test. Forty grams of galactose are given in the morning to the fasting patient, and the urine collected for six hours. The finding of more than two grams of the sugar in the urine is taken to indicate deficient glycogenic function.

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PROTEIN METABOLISM

In the processes of protein metabolism ammonia is formed. The liver changes the ammonia to urea, which in turn is excreted by the kidney. When the ureagenic function of the liver is interfered with, the ratio of urinary ammonia to urinary nitrogen is high; and the ratio of blood urea to total non-protein nitrogen in the blood is low. This has been noticeably true in the cirrhoses and in the toxemias of pregnancy.

FONCTION PTOTEOPEXIQUE

The liver removes from the portal blood certain noxious substances that enter it after a protein meal. When there is liver disease there results a post-prandial leucopenia, lowering of the blood pressure, lessened coagulability of the blood, etc. This phenomenon was described a few years ago by Widal, who designated it as a hemoclastc crisis. The test is simple and easily carried out. A leucocyte count, blood-pressure, etc., are taken on the fasting patient. He is then given a glass of milk and the tests repeated at fifteen minute intervals. Normally, there is a rise of leucocyte count, increase in blood-pressure, etc., which falls to normal within one and a half hours. If there is liver disease, just the reverse reaction will be observed. Unfortunately, the value of the test is minimized by finding positive reactions in many cases in which liver pathology cannot be demonstrated.

DYE EXCRETION

In the last two or three years considerable importance has been attached to the fact that normally, certain dyes are excreted by the liver, and that in liver disease their excretion is delayed. Several dyes have been used in the work of Roundtree, Rosenthal, and others. Perhaps the most satisfactory is Bromsulphalein. This is injected intravenously in the dosage of two milligrams per kilo of body weight, and the percentage of retention in the serum determined colorimetically at intervals during the next hour. Normally, practically all of the dye has disappeared from the blood at the end of thirty minutes. When there is considerable retention, liver pathology is fairly certain. This test has several serious defects. In the first place, it is based upon an artificial function. It is not entirely without danger, although the Bromsulphalein is relatively harmless. The test involves at least three venipunctures, and for this reason is objectionable to the patient.

JAUNDICE

Jaundice has long been considered the most dependable indication of impaired liver function or disease of the biliary tract. However, it is possible to have jaundice without liver pathology. We now look upon jaundice as being one of three types, namely, obstructive, hemolytic, and toxic or infectious. We recognize jaundice clinically from the deposition of bile pigment in the skin, the sclera, the mucous membranes, and its appearance in the urine. This clinical manifestation is preceded by and accompanied by an excess of bilirubin in the blood. Bilirubin is formed normally by the reticuloendothelial system of the bone marrow, spleen, liver, etc., from the hemoglobin of the broken down red blood cells, and excreted by the polygonal cells of the liver. If there is reabsorption of bilirubin from the biliary passages because of obstruction to the outflow of the bile, or if there is inability of the polygonal cells to excrete the bilirubin, or if there is formed an excess of biirubin from excessive hemolysis, bilirubinemia results and jaundice is produced. In other words, clinical jaundice is dependent upon bilirubinemia. Not only this, the different types of jaundice seem to be produced by different kinds of bilirubin. The bilirubin which is formed normally in the blood, and from excessive hemolysis differs from that which passes through the polygonal cells and is reabsorbed into the blood because of obstruction. These facts form the basis of what is perhaps the most important liver function test yet devised, namely:

THE VANDEN BERGH TEST

This test depends upon the oxidation of the bilirubin, using the dizao reagent as the oxidizing agent. The bilirubin which has been altered by passage through the liver cells gives an immediate color reaction when the reagent is added, while the bilirubin formed by excessive hemolysis gives a slow reaction, but when extracted with alcohol, an immediate reaction. The former is called a direct reaction, the latter, an indirect. The former is the typical reaction of obstructive jaundice; the latter of hemolytic jaundice. A third reaction, an immediate color reaction, but with a quick deepening of the color, the so-called biphasic reaction is al-

so described. This reaction seems to be due to the presence in the serum of both kinds of bilirubin, and is the type of reaction usually found in catarrhal jaundice.

UROBILOGEN

Normally, the bilirubin is excreted in the bile, and in the large intestine is decomposed to urobilogen. The urobilogen is passed out in the stools, but a portion of it is absorbed into the portal stream and returns to the liver, where it is apparently elaborated again and excreted. The kidney has a low threshold for urobilogen, and there usually appears slight traces of this substance in the urine. If the liver parenchyma is damaged, it is either unable to change the urobilogen into substances that can be excreted, or to excrete it as urobilogen, as the case may be, in which case the blood is over charged with this substance, and the urine shows excess. One of the simplest of all liver function tests has been based on the determination of urobilogen in the urine. The test is as simple as any single routine test on the urine, and consists in adding a small quantity of the aldehyde reagent, (paradimethylamidobenzaldehyde in HC1) to a few cc. of fresh urine. If urobilogen is present in demonstrable amounts, a pink color will develop at once. By a series of dilutions of the urine, the test can be made roughly quantitative, but sufficiently accurate for clinical purposes.

DISCUSSION

Most of the tests yet devised give too many fallacies to be of practical value. My experience with the tests for impaired glycogenic function has been disapointing because a positive test is given by many conditions not involving the liver. I have had but little opportunity to use the galactose test, but have my information direct from the originator. I think we must always consider the enthusiasm of the originator and make due allowance.

I believe the Ammonia Coefficient of the urine and the relative amounts of urea nitrogen to the total non-protein nitrogen of the blood to be of significance when positive.

I have had considerable experience with the proteopexique test. I believe this test, when positive, indicates liver pathology, if other pathology can be eliminated. But too much dependence cannot be placed in it.

My experience with the dye excretion tests has been too limited to give an opinion. It is highly recommended by men whom I hold in high esteem professionally. I do know, however, from experience, that the dye is also eliminated by the kidneys, and to my mind this fact renders it of less value as a liver function test.

Jaundice, of course, has a definite meaning, limited to three possibilities. The vanden Bergh test is certainly of assis tance is making a differential diagnosis. The immediate direct reaction means obstructive jaundice; the indirect reaction, hemolytic jaundice; and the biphasic probably indicates jaundice of the so-called catarrhal type. Besides this, the vanden Bergh test helps to detect latent jaundice, before the stage of clinical jaundice; by repeating the test at intervals it may help to decide whether the obstruction is becoming more complete, and in this way give some information that may be of value in the diagnosis of malignancy involving the common bile duct; by a decreasing intensity of the reaction, it may point to the liberation of the obstruction before it is noticed clinically; and may indicate progress following operation for obstruction.

The urobilogen test has much to commend it because of its simplicity. It too, helps to differentiate between obstructive and non-obstructive jaundice; urobilogen does not appear in the urine in complete obstructive jaundice; it begins to appear as soon as the obstruction is removed. If a gradually developing jaundice increases in intensity, and at the same time urobilogen which has been present disappears, it is significant of an increasing occlusion, and this frequently means malignancy. In addition to this, the urobilogen test is of value in suspected early cardiac decompensation, because, as soon as there is congestion of the liver urobilogen appears in the urine.

I have not considered the Icteric Index Test because it seems to me to be inferior to the vanden Bergh, because of the effect of hemolysis which may occur even with the best of technic; and a very small amount of free hemoglobin in the serum will vitiate the test.

NOTE—I have not included bibliography: it is very extensive, and I have consulted it freely.

PHYSIOTHERAPY IN MEDICINE

ELIAS MARGO, M.D.
OKLAHOMA CITY

It is a sad thought to know physiotherapy in the past has been mainly in the hands of irregulars. Sad as it is, it may be recalled surgery was once practiced by the barber, and sadder it is to know today drugs are administered by the medicine man.

This noble profession is to be commended for its conservatism in accepting new methods of therapy and research. It also should be more prompt in scrutinizing their claims. As a result of such apathy, much that is beneficial falls in the hands of quacks and exploited for evil and our profession made to suffer in mockery as well as sacrifice.

Physiotherapy c l a i m s superior therapeutic value as an excitant of corrective physiologic actions. This should have been thoroughly inspected and undergone through rigid scientific tests and clinical trials, and either accepted by our colleagues or condemned officially, as has been done with the electronic reactions of Abrams. As a result of such slow attitude, it has been necessary to rescue it from quackery.

An example of sad neglect of an important physical remedy used by the medical profession for centuries is massage. At the present age, we must look to the two cults which have appropriated and exploited to their heart's desire this remedy. I refer to osteopathy and chiropractic. These cults have advertized, popularized and pushed their false claims to the point where few are those individuals who have not at some time consulted them for many ailments varying from sore feet to leutic insomnia. Massage should have been advanced and held sacred by our profession. Had this been done, these cults would not exist today.

Another ill has been the great idea of our researchers and progressive men to to go after big things and overlooking the small, every-day conditions which not only require careful handling, but of which the m a j o r i t y of consultations consist. These are the feeding vitals of the cults and we should admit many get relief and the public is not always deceived. One good turn deserves another one and so they multiply. A simple example of these may be cited by stiff neck.

In spite of these pitfalls and tribulations, physiotherapy is coming into its own. It has become a well organized department of many good hospitals. Practically every government hospital has it. Some of our large medical schools have established chairs. It is being adopted by clinics and clinical groups. It has a congress founded by real ethical men known internationally. No doubt, the government service put it at a high level and soon all medical schools will have it in their teaching curriculum.

Physiotherapy is the treatment of disease by physical means. It is not a new therapy but perhaps the oldest. Its place is among the specific remedies and has its limited usefulness. When the application is properly and well understood, no ther apy is more positive of results. The main pre-requisite in all the modalities of physiotherapy should be a thorough and complete diagnosis. No effort should be made of their use without a known object in results to be obtained. The kind and method of physiologic purpose desired will definitely imply a certain method in course of treatment, for every modality has its limits in reactions relatively to normal or pathologic tissue, thereby, requiring a close observation in physical and chemical equations.

All physical remedies are classified in practice in three kinds; mechanical thermal and chemical. These actions subject to their actual effect upon living tissue by each or by some combination of them. I mention normal living tissue as a unit of application. In dead tissue, we have no such reaction. So in actual use one of these three predominates. With the mechanical, we have massage, vibration, sinusoidal, static electricity and gymnastics. With the thermal, there are three forms of heat. Conductive heat as applied by contact and transmitted by conduction from the heated substance to the desired part to be heated; an example is the hot-water bottle. Convective heat is derived from some such source not in contact with the body but thrown onto the body by radiation, or carried to the body by current of air; an example is radiant light. Conversive heat is energy converted into heat in the tissues from a high frequency current, that is, diathermy. The generation of heat in diathermy is not greatest at the

surface where the electrodes are applied but somewhere in the tissues between the electrodes, and can be accurately gauged and localized by varying the size and point of application of the electrodes. With hydrotherapy, you may have mechanics or heat or both. This varying with mode and object of therapy. In the chemical effects, we have the ultraviolet or actinic rays, galvanism, X-ray and r a d i u m. Your choice should be made in the given pathology only when your diagnosis is made. Mechanics, heat or chemistry, or a combination of these, which is desired and what means should be employed?

Elementary science teaches us that for every action there is a reaction, either physical or chemical. All therapy deals with the reactions of inflammation. These reactions are specific and are always the same They are nature's effort to repair damage in living tissues, and vary only in intensity. If *sufficient* repair results, if inadequate, the end will be chronic disease, disability or death, either of a part or of the whole. These are the conditions physiotherapy plays such a big role in aiding or supplanting nature in her efforts to rehabilitate destructive processes. This with an agent absolutely at our control to initiate, aid, intensify, retard or balance reactions, thereby controlling effects of inflammation in a way best suited to repair the given pathologic condition.

We have learned the object of physiotherapy is inflammatory reactions and its activities are limited to normal living tissue. With reactions of inflammation not dependable of the cause, the etiology if still active should be removed first. No needed or indicated medication should be omitted. Physiotherapy is an aid or adjuvant and all other k n o w n methods should also be employed.

Physiotherapy has its failures, and they may be due to a number of causes. The tissues may not respond, dead tissues do not react. Incorrect diagnosis may be another cause. Hyperactive nerves cannot improve with more stimulation Slight amount of conversive heat aggravates gonococcal infections instead of recovery which only results with intensified diathermy. A large number of failures are due to faulty technic. Proper and correct application is more than ordinary technic read from text books, or completely turning over of patient to technician without proper and unswerving supervision. This also applies as to relation to environment and meals of patient. You cannot give diathermy or sinusoidal properly on an individual after eating a big meal and expect results. Neither on an overworked and tired person. Fault in technic leads to innumerable conditions, poor results or actual damage.

The mechanical appliances are of special benefit in chronic conditions where not only exercise is needed but the teaching of normal functions as well. They are of value in stiffness of joints or atrophied muscular tissue and where physiologic impairment is present as from lack of use. In intestinal stasis where the abdominal muscles are lax and the normal contour and place of the intestines is altered in position, the sinusoidal is of great benefit. This also is very useful in special muscle training for tonicity. Massage and vibration are too well known to elucidate special therapy uses. But in static electricity, we have one of the most effective mechanical and deep stimulative agents known. This is applicable in some special back conditions, as lumbago, when used with other modalities.

Heat is essential to life, health and function. Nature cures no diseases, repairs no injuries and repulses no invading enemy without an increase in the production of heat, properly known as fever or inflammation. The simplest ways of applying heat are the conductive and convective methods, especially the latter as used in cases of burns, simple aches and to precede some forms of massage. However, the most effective and useful is the conversive heat. In diathermy, we have as the name signifies—heat within. This is produced by the passage of a very high frequency current through the tissues. The therapeutic value of heat so produced and localized in pathologic tissue is explained by reactions. It produces an arterial hyperemia, increasing nutrition to the part; dilates capillary, venous, and lymph channels; increasing drainage and favoring osmosis. The high degree of heat inhibits bacterial growth and increases phagocytosis; fibrosed areas are softened, the inflammatory tissue dissolved and the debris eliminated; pain is relieved because pressure is removed. The end result is repair of the diseased tissue treated. This modality is indicated in acute injuries of industrial character, post-fracture treatments, gonococcal infections, hypertension, especially the typical cases of hyper-

piesia in which it is practically specific. Another big field has been opened with this modality, namely: prevention of post-operative shock and elimination of risks common in abdominal operations as outlined by Crile.

The chemical modalities cover a field of such magnitude that only a brief discussion will be given. In galvanism, we have one of the older forms of therapy of which little is generally known, at the same time, is one of the most efficient and satisfactory ways of treating such conditions as leucorrhea, endocervicitis, endometritis and dysmenorrhea. In the latter ailment is, for practical purposes, specific. The same can be said with many neuralgias and some form of neuritis.

We know that sunlight is necessary to animal and plant life and without it we could not exist. In ultraviolet energy, we have the artificial useful chemical sun rays at our command. They are very strongly germicidal in action. They stimulate cellular activity which promotes phagocytosis and the process of metabolism. They produce analgesic effects on nerve endings and makes them useful in neuralgias. They exert an oxidizing action on calcium and phosphorus so that now conditions showing deficiency in these elements can successfully be restored to normal function. An example of this is Rickets in children. The dermatologist cannot afford to be without actinotherapy. It has been demonstrated that disorders of internal secretions do better with the drugs needed plus ultraviolet radiations. Recently, especial emphasis has been made of its use in a large number of cases of abdominal tuberculosis and results obtained are incomparable with any other form of treatment.

In the X-ray, we have a modality which very little need be said as its use has become very general both as an aid to diagnosis and therapy. The same may be said of radium therapy.

Finally let me say what very recently Professor Leduc remarked answering to sarcastic usages by uninformed non-believers in physical therapy: "Some people disbelieve in anything beneficial outside of drug therapy and surgery, but facts cannot be sneeringly disposed of; results are results. Thinkers should never definitely say—'impossible!' Impossible today? Perhaps—but not tomorrow."

RURAL OBSTETRICS*

E. T. ROBINSON, M.D.
CLEVELAND, OKLAHOMA

The term, Rural Obstetrics, as used in this discussion, has reference to that branch of Medicine and Surgery practiced remote from Hospitals, rather than to that practiced in rural districts alone. It may also apply to Obstetrics in the home anywhere. We are for hospitals, first, last, and all the time, both for the safety of the patient, and for the convenience of the obstetrician. But more than ninety-nine per cent of women, with good care before, during, and after, are safe to undergo labor in the home; and in these days of automobiles and good roads, there is not much more than an hour's delay in getting to a hospital if immediate surgery is imperative. Or if necessary, a surgeon and nurse can be summoned in emergency.

This seemed necessary in my practice a few years ago, when a woman six and one-half months pregnant, suddenly developed a severe case of appendicitis, with chills and high temperature, and gave signs of danger. She lived on a lease away from the highway, and the roads were very bad. So a surgeon was hurriedly called. He used the dining table for an operating table, removed the appendix, and the patient made a quick recovery; and in about ten weeks made spontaneous delivery of a strong, healthy child.

Six years ago a case of spina bifida occurred in my work, which looked favorable for operation, but it required early attention if there was any hope at all. We felt there was no chance without the mother's milk, so on the third day, she and the baby were put into the drawing room, and taken by train to the hospital where the child was operated the next day with perfect results. Now after five years she is the most robust of a family of seven, with no untoward results.

Many women prefer to stay at home and take the slight risk, rather than be among strangers for a time. Also the expense is an important item in many homes, both of the hospital and of the home. The majority of cases in the home get along with a practical nurse who looks after the other children too.

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The physician who is so situated as to be deprived of hospital facilities, may, by greater exertion on his own part, give his patients most of the advantages received in the best of institutions. He must personally do the routine analyses, both chemical and microscopic; make blood-pressure readings at frequent interva's, watching always for the least rise, and find cause therefor. While eclampsia is not entirely preventable, still by urinary examinations and frequent blood-pressure readings, we can ward off most cases. If the systolic is above 110, and continues to climb, there must be strict regulation of diet, with complete rest in bed, and drastic elimination, if danger is to be averted. Blood pressure readings are far more important than urinalysis in threatening cases, for eclampsia occurs frequently where no albumen shows up in the urine; but so far as I can learn, no cases occur with normal or low blood-pressure.

We saw a patient at six months gestation with a diastolic of 120 and systolic of 170, nervous tension very high, large amount of albuminuria, and very marked edema—all of which had developed within a few days. This woman was put to bed, food limited to milk and water for days. At the end of this time she began labor with a diastolic of 100 and systolic of 140. Under partial anesthesia she delivered a living baby. It, however, showed convulsive symptoms, which disappeared after the use of bromides; and upon a diet of modified milk it became a healthy child. After delivery, the mother's blood-pressure promptly dropped to 85 and 100, and she made an uncomplicated recovery in her own home.

The pelvimeter is an important aid in examination, especially in the primipara. By these measurements we discover it if a Caesarean is indicated; under such a condition, it would be folly to allow the patient to go into labor.

Recently I heard a doctor say he had had three cases in homes that week, and was all tired out; that they were harder on him than three a day were in the hospital. Yes, it is hard on the doctor, but he becomes accustomed to it when he has them all in the homes, and likes it. There is no monotony about it.

Unless the community affords a Public Health Nurse, upon the physician falls the responsibility of p r e-n a t a l instruction, with its influence on the future health of the nation. Under this comes advice on suitable clothing for the mother and baby, diet, exercise, and elimination. These, insignificant in themselves, mean a great deal in lightening labor.

During the last days of gestation, we advise more liquids and less solids. At first sign of labor, an enema is given, and in case of primipara, one-half glass of castor oil also. The position of the engaging head is then ascertained, if not done previously. Some cases fall to us at the last moment. All examinations are preferably made per rectum; the physician soon learns to be as accurate with this method as per vagina, and the risk of infection is lessened.

Every one has his own notion about relief of pain in labor. Some are still so old-fashioned as to say it is best for Nature to take her course, and the more pain, the more appreciated. But most of us are on the lookout for something to relieve, with no bad effects to the mother or babe. The best thing I have found is Nitrous oxide and oxygen. It gives most relief to the mother, and after using it three years, I can say it is entirely satisfactory. Many have got through naturally where I am sure forceps would have been required without it, and aside from the relief to the mother, it is a great help in reviving asphyxiated babies. By giving the oxygen to the mother after delivery, the child shows immediate results, and becomes pink in a few seconds.

Some object to this anesthetic on the ground that it is too expensive. It does cost more than the drugs used in hypodermic, but in my experience it is safer for the baby. What if we do not make any money on it? If we don't lose, we can afford to use it for the sake of humanity. It is necessary for me to make an extra charge of ten dollars for its use. In some places I understand they charge twenty dollars. But with this charge I have not lost money on it. This amount about evens up, for to some I have to give it only a few minutes, while to others it is for hours.

One particular reason I like to have the patient confined at home is that I can follow the case up better, and see that the baby is properly fed. As soon as convenient, I ask them to send it to my office to be weighed, and to do this every week or two if possible. I try, above all things, to have it fed as Nature is supposed to have

provided, but too often she does not live up to her reputation. For some reason more babies are living out of bottles today, as their parents are living out of tin cans. But if they must have artificial feeding, I urge the use of modified Holstein milk, carefully prepared, and patiently given.

Not long ago a mother complained to me that her baby of two months would not take more than a couple of ounces, and then would cry in an hour or so, and seem hungry, and he was not gaining in weight as he should. I found out she was propping him up on a pillow and expecting him to nurse the bottle alone. She said, "Why, I don't have time to hold it for him; that is when I get my work done." So I say—Always hold the bottle and don't give anything else up to six months except orange or tomato juice and cod liver oil.

Recently a mother brought her six-months-old boy to my office. He was sick; plainly his digestion was upset. I asked what he had been eating, and she said nothing except a whole ice cream cone, but he was used to them, and a coke, but he had drunk them always, and liked them. This shows how much good it does to follow up sometimes.

But with all the safety we feel in these cases at home, we feel a thousand times safer just to know that not many miles away there is a hospital, and a skilled surgeon ready to meet any emergency in his line, and that only a few hours lie between us.

ANATOMY AND PATHOLOGY OF THE MAXILLARY SINUS*

EDWARD F. DAVIS, M.D., F.A.C.S
OKLAHOMA CITY

The adult maxillary sinus has been known to anatomists since the second century but was first described as a pathological possibility in 1651 by Nathaniel Highmore. Since then it has borne the name, Antrum of Highmore.

The primitive sinus maxillaris appears at about the seventieth day of fetal life as merely a shallow pouch—usually single—extending from the ethmoidal infundibulum as a narrow slit in the lateral nasal wall. Through resorbtion of the cartilaginous capsule and bone, this pouch descends into the body of the maxilla. In the embryo, the sinus necessarily is minute owing to the proximity of the alveolar process to the orbital floor.

At birth as in later life the sinus varies greatly in size and shape. The greatest dimension is anterior-posterior, the next is the vertical and the narrowest is the lateral. To the age of three, the latter is very narrow but, following this time, its increase in g r o w t h is proportionately greater than that of the other dimensions.

The general enlargement of the antrum progresses with the growth of the child but, naturally, is less impeded after the first dentition. It reaches the adult stage at about the age of fifteen. In infancy, the middle meatus rather than the inferior is in relation to the sinus and operative procedures should be directed through the former region in order to reach the cavity and to avoid injury to the tooth buds. It must be remembered also in entering the sinus either through the nose or by way of the canine fossa that it is very narrow transversely and t h a t a through-and-through puncture easily is possible.

By the age of fifteen, the sinus has reached almost its full development in size; having expanded gradually in length, height and width from 7x4x3 mm at birth to about 31x18x19. The only further increase in measurements is vertical and diagonal.

The adult maxillary sinus lies in the maxillary bone and has a three-sided pyramidal shape with the apex directed toward the zygomatic process and the base or median wall forming a part of the lateral wall of the nasal cavity. The ventral wall is represented by the facial aspect of the maxilla. It presents the canine fossa which, when prominent, reduces considerably the anterior-posterior dimension. This fossa as well as the canine tooth must not be considered as guides to the penetration into the sinus as was thought at one time. The dorsal wall is very thick and forms the ventral walls of the infratemporal and pterygopalatine fossae.

The base of the pyramid is the median wall which is also the lateral wall of the nose. It shows a large irregular opening, the hiatus maxillaris which is narrowed by the perpendicular plate of the palate, the unciform process of the ethmoid, the maxillary process of the inferior turbinate and a portion of the lachrymal bone. In the recent state, mucous membrane

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narrows this opening, forming the communication between the antrum and the infundibulum, and is reflected as the lining of the sinus. Below the attachment of the inferior turbinate, the bone is very thin and is the region of choice for puncture through the nose.

The roof is a thin plate forming the orbital floor. It shows a ridge representing the infraorbital canal which, at times, is not completely enclosed by bone but is bridged in part by the antral mucosa.

The floor is the alveolar process of the maxilla and is the thickest boundary of the sinus. It may show irregular elevations and depressions corresponding to the tooth sockets and their intervening spaces. The relation of the level of the sinus floor to that of the nasal cavity depends largely on the amount of extension of the antrum through absorbtion of the alveolar process and the degree of the palatal arch but usually it is lower than the nasal floor.

There is no constant relation between the teeth and the antrum owing to wide variations in different skulls and in the halves of individual skulls. The roots of the teeth extend deeply into the floor and may penetrate to the mucosa. While this may occur in young adults, it is more common in the aged. The intimate relationship between the teeth and the sinus are of pathologic importance but it seems that infected antra are as frequent a cause of diseased teeth as is the reversed order.

The canine tooth is only rarely in relation to the antrum, the premolars are more frequently so but the molars are the most constant. Where there is a narrowing between the canine fossa and the lateral nasal wall, it is fairly certain that the canine and premolars are not in direct relation to the antrum and it is unlikely that it can be entered through the sockets or these teeth.

Frequently, the walls of the sinus show irregularities and crescentic ridges which, in rare instances, may become septa, forming two cavities; each with its own opening into the nose. True duplication of the antrum probably is due to an abnormal extension of an ethmoid cell and in these cases, the nasal opening is into the superior meatus.

In the development of the antrum, the primitive maxillary pouch in its extension into the maxilla, leaves a permanent opening the maxillary ostium—which leads into the infundibulum, thence through the hiatus semilunaris and into the middle meatus. It should be remembered that the ostium is in the upper part of the nasal aspect of the antrum and that it opens into the ethmoid infundibulum and not into the hiatus semilunaris. There may be more than one ostium due either to duplication of the sinus in its development and having a separate opening into the nose or, if acquired later in life, the result of attenuation of the lateral nasal wall. These accessory ostia occur in from fifteen to twenty per cent of specimens and usually are not found under the age of fifteen.

The antrum is lined with mucous membrane continuous, through the ostium, with that of the nasal cavity. It is columnar, ciliated, very thin and closely applied to the periosteum. It is less vascular than the nasal mucosa and does not contain erectile tissue.

The chief blood supply of the maxillary sinus is the posterior nasal artery which ramifies on the medial wall and anastomoses with delicate collateral branches from the infraorbital and the posterior superior alveolar arteries.

Use of the X-rays gives important information regarding the extent and shape of the antrum and should always be employed before radical operative proceedures. The pictures should be taken in the anterior-posterior position and not in profile on account of possible confusion with the opposite cavity. Of somewhat less value in the determination of pathologic conditions is transillumination.

The pathologic conditions of the antrum are acute and chronic catarrhal, acute and chronic suppurative and diphtheritic inflammations of the mucosa.

In acute catharrhal inflammation, the mucous membrane is edematous, hyperemic, loosened and infiltrated with cysts containing yellowish or grayish fluid. In chronic catarrhal states, the edema of the acute form involves the underlying periosteum and the membrane may be swollen to ten or fifteen times its normal thickness. True cysts, hypertrophies and pedunculated polypi may be found.

Acute suppurative inflammation or empyema shows hyperemia and edema with localized hemorrhages into the membrane the surface of which is covered with pus. This condition undergoes resolution or advances to chronic empyema. In the chronic form, there is connective tissue proliferation, pus formation and mucopurulent dis-

charge. Polypoid changes may be present and vary in size from small granulations to large masses. The larger polyps are commonest in the region of the ostium and may protude through this into the nose. The mucosa may be thrown into folds and fibrous changes take place to the extent that the membrane becomes thick connective tissue.

In disease of the accessory sinuses, the pathology usually is limited to the mucosa but inflammations may involve the bone in both a hyperplastic and destructive way. In the latter condition, there may be very serious complications in the orbital and cranial cavities or a general septic state might arise. Extension to neighboring or more distant regions may occur through normal bone by way of the blood streams or through the lymph vessels or their sheaths or by the more direct continuity of thrombosis. Direct extension through bone necrosis due to periostitis on osteomyelitis is not uncommon.

The above-mentioned conditions are considered as being genuine inflammations, having their origin in some acute infection such as influenza or by extension through the ostium from the nose. Transmitted inflammations usually are produced by disease of the alveolar process induced by infected teeth—acute abscess of the root, acute periostitis or circumscribed or diffuse osteitis.

Acute abscess of the root of a tooth usually is secondary to dental caries through trauma, and toxic influences produced by phosphorus, mercury, etc. may produce this condition. At first, this is limited to the dental periosteum and the apex of the tooth becomes exposed. In cases where the overlying layer of bone is thin or missing, empyema of the antrum is especially prone to occur. Necrosis of the alveolus may be aggravated by the trauma caused by extraction of an infected tooth and antrum infection follow this operation.

Empyema of the antrum may be of luetic origin with necrosis of the nasal wall and fistula formation. Tuberculosis of the mucous membrane of the antrum is rare and is secondary to a general involvement or to extension from neighboring structures. Malignancy, usually metastatic, is accompanied by great expansion of the sinus and particularly fetid discharge.

(Acknowledgment of material assistance in the preparation of this paper is made to the writings of Hajek, Hottjer, Hansel, Schaeffer, Phillips and Beck).

EXPERIENCE IN CATARACT EXTRACTION*

HERBERT MOULTON, M.D.
FT. SMITH, ARK.

Not many years ago there were comparatively few men who operated for cataract. Some of them such as Knapp of New York, and Chisolm of Baltimore, were able to operate on more than 100 cases yearly. Their published statistics have been of great value to ophthalmologists. Today the number of operators is enormously increased so that no one operator is able to report such lists of operations as did these men. Few operators, even in our largest cities, can report individually as many as twenty-five a year.

But as we smaller operators must continue to operate it is just as necessary as ever that we discuss our cases together and compare results in order that we may improve our work. This is the excuse I offer for presenting some of my own experiences based on 200 consecutive operations.

I have operated on all kinds of cases, in all kinds of places, in all kinds of ways, and I may add with all kinds of results. Yet in this series, total failures have been only 9, or less than 5 per cent. In the first 100 cases, which series began thirty-five years ago, before we had the advantage of modern hospital facilities, there were four infections of the wound. In the last 100, but one. Of course it is to be admitted that there ought to be no infections, but they come to every operator some time. Two of mine were in cases operated on in unsanitary homes. One occurred in a man of 75 years who had an uncontrollable convulsive tic, and on whom I operated under protest.

Nowadays, operating in modern hospitals I no longer dread the possibility of suppuration as much as in my earlier years, yet it is a danger ever present. I think, aside from the ordinary aseptic precautions, no one thing is so important in avoiding infection as the use of dry instruments and dry hands. A few drops, or even one drop, of water may wash septic material from the operator's hand or the patient's eyelids or conjunctiva into the wound.

In my first years of operating I employed exclusively, the combined extraction

*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association. Muskogee, May, 1927.

with the classical Graefe linear incision. Then came the simple extraction, which I took up with avidity and pleasure employing it in the great majority of cases, about 40 in all. But soon, with other operators I swung back to the combined extraction, doing the simple only in a selected minority. The visual results in my experience are practically the same in the two methods, but the greater danger of prolapse of the iris is sufficient to condemn the simple operation in most cases. While I had only two cases of prolapse in my simple cases, and while after excision the results were finally good, yet they were exceedingly troublesome.

I have had prolapse of vitreous in only four cases, two of these resulted in detachment of the retina. The others turned out well. I attribute my success in preventing prolapse of vitreous, first, to my habit of putting my patient through a sort of rehearsal before the operation, showing him how simple it is to look up or down and to close the eye quietly, as in going to sleep, and not to squeeze. I tell him not to talk but to listen to me.

Second, on removing the speculum after the section, or later, I make sure to hold, or have my assistant hold, the lower lid away from the eye ball by the finger or thumb placed on the lower rim of the orbit until the upper lid has been fully replaced to its normal position. You all may have noticed that it is the pressure of the lower lid that tends to cause the wound to gap. I have not felt the necessity of injecting the orbicularis with procaine.

I have not done the secondary operation of discission as often as I would if the patients would permit. Being careful to make a large crucial incision of the anterior capsule, the result usually is good or the patient at least satisfied. I seldom use the capsule forceps, always being a little afraid of dislocating the lens. I have done the secondary operation in only twenty cases.

I have irrigated the anterior chamber in a score of cases. In one early case in which I used boracic solution there developed a permanent nebulosity of the cornea, with vision of 20-100, while I obtained in the other eye of the same patient, without irrigation, vision of 20-40. The cataract of the first eye was immature; that of the other operated on a year later was mature. My rule now is, if I employ irrigation, to use only normal salt solution.

There were thirteen cases of extraction in the capsule, but this was not premeditated in at least three of them. I use Verhoff's forceps usually in attempting this operation.

Major Smith's operation has not been tried for two reasons: First, the small operator should not try it; second, the majority of those who have observed it are not agreed that it is a good operation for the Caucasian eye. If it has advantages in cases of immature cataracts, that is offset by the fact that in such cases, with irrigation if necessary, we generally get good results anyway. If a small amount of cortex remains, it is not so greatly to be feared after all. It is a matter of frequent observation that cases of extraction, whether of mature or immature cataracts, having vision of, say, 20-100 two weeks after operation, will return in two months with vision of 20-50 or 20-30, or better, after absorption of cortex. For much the same reason I have not essayed the suction operation.

In all I have operated on, twenty-six cases of immature cataract, only one was under sixty years of age. Three were eighty or past, ten had vision of 20-40 to 20-30, fifteen 20-50 to 20-200. The other was one of the unfortunate suppurations previously mentioned.

I have not found age a hindrance to operative success if health is otherwise good. Twelve cases have been over eighty years of age and did well.

It has happened that I have had to operate by the combined method in fifteen cases in which the eye I operated on was the patient's only eye, the other having been enucleated or destroyed by disease. In all of these cases good results were fortunately obtained, although some were complicated by disease existing previously in the eye.

One case was in a man sixty-four years of age. Left eye had been blinded by corneal ulceration three months. Right eye, blind many years, contained a ripe senile cataract, mobile pubil, fair perception and projection. Recovery after combined extraction was uneventful, yet a large central coloboma of the choroid was discovered extending from the papilla nearly to the macula. In spite of this, vision was 15-100. Another was in the case of a man aged forty-eight years,

whose only good eye I enucleated because of a mine accident. The remaining eye had been blind many years. It contained a Morgagnian cataract. The iris was tremulous and the nucleus of the lens could be seen floating about in the milky cortex. Perception and projection, fair. After capsulotomy and the escape of the fluid cortex, the nucleus had to be removed with a scoop. No vitreous was lost. After recovery, which occupied three weeks, the vitreous was seen to be full of fine opacities. Vision, 20-70. The man went back to work in the mines. It is mostly of remark in this case that the worst complication was that the man was a Slav who could not speak a word of English or German.

I have operated with good results on several cases complicated with entropion. I simply pulled all the scratching lashes because the patients would not remain long enough for a lid operation to precede the cataract extraction.

In another category, a very interesting case was that of a woman forty-four years old, blind since childhood. She had hypermature shrunken cataracts which were both completely extracted, capsule and all. The chief interest lay in the fact that as she had never learned the visual form of objects, she had this to learn at a time of life much later than nature designed she should. She learned to see very slowly. At first we feared she could not see at all. Retinal images meant nothing to her. By and by, however, she could count fingers across the room. This was some weeks after operation. Gradually then, she began to distinguish different objects by sight and apply the names she used when formerly she had been obliged to identify them only by the sense of touch. After several months she had learned fully to use her eyes and had vision of 20-40 in either eye. The tardy assumption of the function of vision after operation was not due to any physical defect in the eyes, because in ten days after the operation the media were all clear, fundus normal, and the eyes free from irritation.

I wish here to mention another very unique case. A man seventy-five years old came October 18, 1913, with mature cataract of the left eye and incipient of the right. His left eye was operated on three days later by the combined method. Operation and recovery, smooth. Discharged after twenty-one days. December 9, vision 20-150. The pupil was clear, except for a slight web due to wrinkled capsule. A deep opacity could be made out in the vitreous, but not identified. February 2nd he returned with anterior chamber full of blood. Given atropin and dionin locally, mercury and iodids internally. March 9th, blood absorbed. A yelowish-white globular tumor about three mm. in diameter lay in the lower angle of the anterior chamber. It resembled a cyst, but in another month this had disappeared. Vitreous cloudy, no fundus, V. L. P. After this, eye remained quiet. About the time of the hemorrhage into the anterior chamber, or February 1st, the patient began to develop symptoms of pellagra, and died of this disease in June. Hs wife had previously died of the same disease.

I do not believe there is another case on record of pellagra complicating cataract after operation.

In one rare case, two years after an operation which had given the patient 20-20 vision, the eye was suddenly blinded by an embolism of the central artery of the retina.

Another rare case was that of a woman seventy-nine years old in which the wound failed to close for two weeks, during which time the anterior chamber remained full of blood, and bloody aqueous continually leaked from the wound staining the dressing red every day. I thought the eye was lost, but the hemorrhage finally ceased on closure of the wound. The blood was slowly absorbed and a discission of a thin pupilary membrane some months later gave vision of 20-50 and ability to read ordinary print with comfort and ease.

These are some of the interesting and unexpected things that may happen to a cataract operator. They teach us to be ever on our guard, ready for emergencies.

Final results in all cases were:

Vision 20-20	to 20-50	cases	113
Vision 20-50	to 20-100	cases	58
Vision 20-100	to 20-200	cases	20
Vision less than	20-200	cases	9
		Total	200

Before closing, I wish to add my testimony to the value of the conjunctival flap. In late years I always make use of it as follows, though the method is not original with me: The knife, in making the incis-

ion, is kept exactly in the limbus from puncture and counter-puncture to the summit. As it cuts through the last layers of the cornea the edge is turned backward and carried up under the conjunctiva for one-fourth of an inch or more, making a rather broad conjunctival flap.

I occasionally employ a corneal suture after the method of Kalt or Verhoff.

LISTER'S DISTRIBUTORS

In this issue appears a two page colored insert of Lister Bros., Inc., of New York City. For the convenience of readers, a list of their Oklahoma distributors (the field covered by this Journal) is herewith given:

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ALLERGIC MIGRAINE

Warren T. Vaughan, Richmond, Va. (Journal A. M. A., April 30, 1927), reports ten cases as a further contribution to the study of migraine as an allergic diseases. In this series, treatment by specific avoidance, based on the theory of allergy, has prevented attacks of migraine. In typical cases, renewal of contact with those foods to which the patient has been found sensitive caused return of the attacks. In a total of 33 cases of migraine or chronic periodic headache, the patients have been tested for food sensitization. The ten cases described present definite evidence of relief from avoidance of allergens, discovered through the skin tests. Two other patients with chronic headaches have been relieved, one for six years by wheat avoidance, the other for the last two years by milk avoidance. Four experienced great relief during the period of observation (from six to thirteen months), but their present state is not known as they did not reply to a follow-up questionnaire. Ten were followed closely for some time and did not derive relief from the treatment. Seven referred patients have not been seen since the tests were made, and did not reply to the follow-up questionnaire. In twelve of the thirty-three cases (36.4 per cent), allergy appears quite definitely to have played a part. In four others, there was at least temporary improvement on avoidance of certain proteins. Ten patients were not benefited. Seven did not reply. These must be recorded as not benefited, although Vaughan's experience with follow-up questionnaires is that the patients with good results are as likely to fail to reply as are those with bad results. Among the ten unsuccessful cases, three patients gave good positive sensitization reactions, but in spite of good cooperation, their condition was not improved. One of these, sensitive among other things to egg, continues with her migraine but reports that eggs always exaggerate her symptoms. Her general physical condition has improved decidedly since she has avoided food containing eggs. There is considerable evidence that in migraine a central nervous system angiospasm exists. Angiospasm is the characteristic vascular phenomenon in anaphylaxis. From a study of his own records, Vaughan believes that the poor results with skin tests reported by other writers may be due in part or entirely to failure to pay sufficient attention to the delayed positive reactions coming on after from six to twenty-four hours.

SPONTANEOUS FISTULAS IN LYMPHOGRANU-LOMATOSIS

In the case reported by Eugene F. Traut, Oak Park, Ill. (Journal A. M. A., April 30, 1927), lymphogranuloma behaved more than usually like tuberculosis of the lymph glands. However, the specific tests excluded tuberculosis. The only factor other than lymphogranuloma tending to produce glandular nerosis and fistulas was prolonged radiation. But fistula formation under roentgen-ray treatment is typical of glanular tuberculosis rather than of lymphogranuloma. Traut says that lymphogranuloma can be clinically indistinguishable from tuberculosis of the lymph glands. It can spontaneously invade the skin and produce fistulas. The caseous material from such processes is grossly identical wtih the liquefaction necrosis in tuberculosis. Only histologic study and animal inoculation can clearly distinguish lymphogranuloma from tuberculosis of the lymph glands.

ACUTE ENCEPHALITIC PARKINSONISM

The case described by Bernard J. Alpers and Clarence A. Patten, Philadelphia (Journal A. M. A., April 30, 1927), is of interest because of the development of a paralysis agitans syndrome almost immediately following an attack of acute epidemic encephalitis. The condition lasted only a short time, and has not recurred in two years.

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief
Barnes Building, Muskogee, Okla.

DR. P. P. NESBITT.....Associate Editor
Palace Building, Tulsa, Okla.

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Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

THANKS FOR COOPERATION

During January more than fifteen hundred and fifty members renewed their membership for the coming year. This is a record not heretofore equalled; we do not believe it is equalled by the membership of any other state association. We wish to extend our thanks and write this as an appreciation of such splendid cooperation. By this promptness the individual took a long step toward aiding his county secretary and the county secretary with equal cooperativeness of spirit passed the good thing along to our office. This is to advise all concerned that the secretary appreciates the aid and stands ready to reciprocate in any and all matters affecting our members at any time.

THE NEXT ANNUAL MEETING

After considerable preliminary work, studying dates and schedules of other organizations planned to meet in Tulsa, May, 1928, the dates of May 17, 18, 19, have been selected as most available, all things affecting the situation considered. These fall on Thursday, Friday and Saturday, and are somewhat an innovation in our history, in that we have always met upon Tuesday heretofore. Investigation disclosed that the week preceeding was taken up by another organizaton—we tnink the State Funeral Directors—some other organization has the week following ours and the State Bankers had preempted the dates May 15, 16, so, we had no choice except to select the part of the middle week in May, which seemed most available.

Work upon formation of the various sections is progressing rapidly. They promise to be fuller than ever before. Hotel headquarters will be the Mayo and all meetings, including registration, exhibits and scientific sections will be held in one building, the Shrine Temple. We will have ample room in this building for every activity.

SURVEY OF CHIROPRACTIC AND NATUROPATHY

Notwithstanding the appreciable unpleasantness of such work, a representative of the Council on Medical Education and Hospitals, American Medical Association, has succeeded in making a survey of all the schools in the United States maintained by the above named cults. A section of the report deals especially with the situation in Oklahoma. One significant statement, the fact already well known to most physicians, is nevertheless well worth quoting.

"Chiropractic is said to have originated (been discovered) in 1895 with D. D. Palmer, a *magnetc healer*..... and to have been "developed" by his son, B. J. It is in reality the older osteopathic concept verv slightly modified and renamed. It was the enlarging of the osteopathic field and the lengthening of the osteopathic curricu-

lum that gave chiropractic its opportunity, and the latter's rapid development has been due largely to the fact that it offered a short cut to osteopathy." We believe this to be correct and also to explain the reason, if that is a reason for the osteopath; he is simply seeking a short cut to the practice of medicine by studying osteopathy, rather than medicine, for licensure by osteopathic routes is easier than for the candidate who wishes to sail under the title M. D.

The Chiropractic requirements, the alleged best of such schools claims a four-year high school course as necessary for entrance. It is probable that not one of them are enforcing such requirement. Mature age, business experience, an ability to carry on chiropractic courses, or any convenient achievement is declared to be a satsfactory equivalent. Fifty per cent do not claim to require even a high school education . . . . one of the best evaded the requirement by giving night quizzes twice weekly for six months as equivalent, but an extra charge was made for this "preparation." The courses are "poorly chosen," "very poorly outlined" and ' poorly arranged." Equipment invariably found consisted of a few adjusting tables, student's chairs and desks. Some have turned to physical therapy or naturopathy and installed a varying amount of electrical apparatus. A few had X-ray machines, used, except in one instance for "spinography." Fifty active schools are listed, a few being mere branches between existing institutions. These fifty constitute less than one-third of those formerly existing. Very few of them have even one adequately trained teacher on the faculty ,and there are probably less than five expert all-time teachers in the entire lot of fifty institutions. Not one enforces a matriculation requirement of even five minutes' high school study. Not one gives so much as one worthy laboratory course or has one worthily equipped laboratory. Not one conducts a clinic in which a wide variety of common diseases may be studied, nor are they equipped with scientific apparatus necessary to make a scientific diagnosis of the commoner diseases. Not one maintains a clinic equipped for the treatment of patients suffering from these diseases. None of the schools' faculty or students may enjoy the privilege of practice or even of observation in any worthy hospital. They all proceed on bases of unproved theory, ignoring the lack of endorsement by all worthy educational institutions. They all owe their existence to the fact that they offer a short cut to the practice of medicine.

The Oklahoma branch was founded by Willard Carver, formerly "attorney" for B. J. Palmer, claims to be two years older than the Palmer school itself, chartered in 1907. Carver is an active man, if his record is correctly stated. He "lectures" at Carver Institute, New York, but that does not prevent him from functioning in like manner in Denver and Oklahoma City. A fourth school, for the south, located at Birmingham, is now reported as inactive. No doubt Dr. Carver could not find time to cover so much territory, hence the demise. Attendance is slowly falling to the vanishing minimum. Very few men can now be found gullible enough to try for such "schoolastic" honors as are offered by this fountain head of wisdom.

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Editorial Notes—Personal and General

DR. C. C. GARDNER, Atoka, has been appointed Captain in the Oklahoma National Guard.

DR. and MRS. J. I. GASTON, for many years located at Madill, have moved to Shawnee.

DR. PAUL MOTE, Sapulpa, who has been suffering from a severe case of influenza, is improving.

DR. D. LONG, Duncan, health officer of Stephens County, has issued warnings as to an impending epidemic of smallpox.

DR. G. S. BARGER, formerly of Wayne, later of Casper, Wyoming, has returned to Oklahoma and located at Purcell.

DR. O. H. COWART, Bristow, who underwent an operation recently, has sufficiently recovered to be removed to his home.

DR. and MRS. A. M. McMAHAN, Duncan, announce the birth of an 8-pound baby girl. Both mother and baby are doing nicely.

DR. W. S. STEVENS, Medical Director of U. S. Indian Service, announces that Indian Hospitals in Oklahoma are treating 225 cases.

PAYNE COUNTY MEDICAL SOCIETY met at Cushing, January 25th. Dr. M. S. Gregory, Oklahoma City, read a paper on "Mental Diseases."

DR. J. A. WALKER Shawnee, returned the latter part of the past week from a 1,500-mile motor trip in Arkansas, Louisiana and Texas, having been away for about three weeks.

DR. H. C. WEBER was installed as president of the Washington County Medical Society. Other officers installed were: Dr. C. V. Dorsheimer, Dewey, vice-president; Dr. J. V. Athey, secretary; Dr. J. T. Van Sandt, treasurer.

DR. A. J. WEEDN, Duncan, recently visited hospitals in the northwest part of the state as representative of the State Hospital Association.

DR. L. J. MOORMAN, Oklahoma City, recently succeeded in inducing the Oklahoma Land Commission to sell 40 acres of land adjoining his Sanitarium.

DR. G. E. HARRIS, Hugo, is reported slightly improved. Dr. Harris was stricken several days ago with influenza and was taken to the sanitarium at Paris.

DR. R. H. HANNAH, Prague, who has been practicing for 41 years, recently announced that he had delivered 3828 children. The number did not include consultation cases.

COL. WM. H. BAILEY, is the way military letters should now be addressed to Dr. William H. Bailey, Oklahoma City, who was recently promoted from major to lieutenant-colonel.

WOOD COUNTY MEDICAL SOCIETY met at Waynoka. Papers of interest were read and discussed and the program was concluded with a banquet. Drs. Clapper and Hall of Waynoka were hosts.

HUGHES - SEMINOLE COUNTY MEDICAL SOCIETIES met at Holdenville, January 25th. The principal speaker of the evening was Dr. Ray M. Balyeat, Oklahoma City, who spoke on Hay Fever and Asthma.

THE SIXTH ANNUAL KANSAS CITY FALL CLINICAL CONFERENCE will be held in Kansas City, Shrine Temple, October 9-11, 1928, according to the announcement of Dr. James R. McVay, director of clinics.

DR. A. S. RISSER, Blackwell, read a paper on Surgical Diagnosis at the meeting of the Kay County Medical Society at Tonkawa, January 19th. Dr. Risser was guest of honor at a meeting of the Muskogee County Medical Society, January 27th.

OSAGE COUNTY MEDICAL SOCIETY meeting February 6, received the official visit of Dr. C. T. Hendershot, Tulsa, Councilor, who read a paper on Hypertension. Dr. Chas. J. Woods, Tulsa, read a paper on Radium Therapy in Dermatology.

MURRAY COUNTY MEDICAL SOCIETY held their monthly meeting and elected the following officers for 1928: Dr. W. H. Mytinger, president; Dr. O. W. Sprouse, vice-president; Dr. H. C. Bailey, secretary, and Drs. Powell, Slover and Mitchell, censors.

THE ANNUAL STAFF ELECTION at St. Johns Hospital, Tulsa, was held January 17th. Dr. C. D. F. O'Hern being chosen Chief of Staff; Dr. Ross Grosshart, vice-president, and Dr. Claude T. Hendershot, re-elected secretary-treasurer. New members of the Board of Governors will be announced later.

JACKSON COUNTY MEDICAL SOCIETY elected the following officers for 1928: Dr. Joseph B. Hix, president; Dr. W. B. Rudell, vice-president; Dr. Earl W. Mabry, secretary-treasurer, and Drs. John Reid, J. S. McFadin and W. H. Price compose the board of censors.

DR. WILLIS K. WEST, Oklahoma City, was in charge of the Crippled Children Clinic held in Hollis, January 28th. Dr. West held a clinic for crippled children in Mangus, January 12th. These clinics were held under the auspices of the Oklahoma Society for Crippled Children.

LINCOLN COUNTY MEDICAL SOCIETY met January 4, at Chandler. Dr. U. E. Nickell, president, presiding. Meeker was selected for the February meeting place. Dr. W. J. Wallace, Oklahoma City, read a paper on "Pyelitis." Dr. J. W. Rollins, Prague, read a paper on "Hysteria."

POTTAWATOMIE COUNTY MEDICAL SOCIETY met January 12, 1928, beginning with a banquet. During the evening Dr. Lea Riley, Oklahoma City, made a talk; other talks were made by Dr. J. S. Fulton, president-elect of the association, and Dr. L. S. Willour, McAlester.

TULSA COUNTY SOCIETY held its annual election of officers December 12th. The following were elected: Dr. Claude T. Hendershot, president; Dr. Chas. J. Woods, vice-president, and Dr. Ralph J. McGill, secretary-treasurer. A vacancy on the Board of Censors was filled by the election of Dr. John F. Gorreil.

DRS. E. E. WAGGONER, Tonkawa; R. B. Gibson, C. L. Blanks, and David Cowgill, addressed the Ponca City Lions Club, January 19th. Dr. Cowgill spoke on the "County Health Unit;" Dr. Blanks on "Care of the Eyes," and Dr. Waggoner delivered the principal address upon "The Fallacy of Criminal Insanity."

CREEK County Medical Society elected Dr. G. C. Croston, Sapulpa, President; Dr. O. C. Coppedge, Bristow, Vice-President; Dr. C. L. McCallum, Sapulpa, Secretary-Treasurer. Members of the Society attended a banquet and heard an address on "Medical Jurisprudence" by Grady Lewis, assistant county attorney.

STEPHENS County Medical Society elected the following officers: Dr. A. J. Weedn, President; Dr. L. M. Overton, Vice-President; Dr. J. W. Nieweg, Secretary, "re-elected;" Dr. A. M. McMahan, Censor; J. W. Nieweg and L. M. Overton, delegates; S. H. Williams and B. H. Burnett, alternates; all of Duncan.

MUSKOGEE COUNTY MEDICAL SOCIETY entertained with a dinner at the Town and Country Club January 27th, in honor of Drs. Edward J. Rose, Medical Officer in charge, U. S. Veterans' Hospital, and Calvin E. Clay, Clinical Director, U. S. Veterans' Hospital. Dr. I. B. Oldham acted as toastmaster. Addresses were made by Drs. A. S. Risser, Blackwell; A. W. Pigford, Tulsa, and W. T. Tilley, Muskogee. Dr. Carl F. Jordan, Muskogee, gave an interesting talk on his experiences as a Doctor in China. Lantern slides were shown during his talk. About thirty physicians and their wives were present.

PHI BETA PI FOUNDERS DAY DINNER DANCE

The Kansas City Alumni Chapter Phi Beta Pi medical fraternity will hold its Founders Day dinner dance at the President Hotel, Kansas City, Missouri, Saturday, March 10th, 7:00 P. M. Dr. Lawson G. Lowery, Supreme Secretary, will be present as well as other prominent representatives of the fraternity. Following the dinner there will be dancing in the Congress room at the hotel from 10:00 P. M. to 1:00 A. M. to music furnished by a ten-piece orchestra. For those who wish to play cards there will be tables in the Assembly room and appropriate prizes will be given to the winners.

The price of the dinner dance will be $3.00 to members of the alumni, but a special price of $2.50 is being made to hospital internes and members of the active chapter.

Every member of the Phi Beta Pi fraternity in the State of Oklahoma is cordially invited to be present as between four and five hundred are expected at that time. Remember the time and place—Saturday, March 10th, 7:00 P. M., President Hotel, Kansas City, Missouri.

DOCTOR ALBERTO M. SHERBURNE

Dr. A. M. Sherburne, practicing at Cordell for the last 28 years, died October 15, 1927, of cancer of the stomach, after a year's illness. Dr. Sherburne was born at Mateland, New Hampshire, February 28, 1846. His preliminary education was obtained at Syracuse, N .Y., and Northwestern Medical College, of St. Joseph, Mo. He graduated from Northwestern Medical College in 1881. Dr. Sherburne was a member of the Washita County Medical Society and Oklahoma State Medical Association, having been president of the Washita County Medical Society in 1927.

DOCTOR GRAHAM STREET

Dr. Graham Street, one of the best known physicians of McAlester, died January 16, after an illness of many months. Funeral services were held under the auspices of the Masonic fraternity. Burial was in Oak Hill Cemetery. Dr. Street is survived by his wife and one sister.

Dr. Street was born in Henderson, Texas, January 15, 1862. He studied medicine and practiced in Austin, Texas, eight years and for four years in Atlanta, Ga. In 1901 he left Atlanta, moving to McAlester where he practiced for 27 years. He specialized in eye, ear, nose and throat work and stood very high in the profession. Dr. Stewart was a prominent Mason, attaining the 32nd degree twenty years ago. He was a member of the old Indian Territory Medical Association until the organization of Pittsburg County Society, of which he was a member.

Dr. Street was of a quiet, unassuming character and made many friends, both personal and professional, during his 27 years in McAlester.

Resolutions, upon the death of Drs. Bland and Anders, Tulsa County Medical Society.

DR. J. C. W. BLAND

Dr. James Charles William Bland, age 68, graduate Missouri Medical College, 1884, for 43 years engaged in general practice in Northeastern Oklahoma and Indian Territory, died at the Oklahoma Hospital in Tulsa January 2nd, of carcinoma of the colon, after being confined in the hospital six weeks.

Locating in Red Fork over 40 years ago Dr. Bland was known throughout the Northeastern section of the state for many years —having practiced among the Indians and earlier settlers long before there were any roads or bridges. The hardships endured by this pioneer physician reads like a story from fiction.

It was the writer's privilege to know Dr. Bland intimately for over 20 years, and his kindly counsel and advice was eagerly sought by the younger generation entering practice in the new state in those early days.

Associated with Dr. Fred S. Clinton, long a leading surgeon of Tulsa, Dr. Bland, in 1902, drilled the first oil well in the Indian Territory, at Red Fork. From the impetus of this event followed the oil development that has made Tulsa the oil capital of the world.

Dr. Bland was a member of the old Indian Territory Medical Society, and until a few years ago actively identified with Tulsa County and the State Medical associations.

His funeral was conducted by the Masonic Lodge, of which he had long been a member, at the First Presbyterian Church in Tulsa, Thursday, January 5th, 1928, attended by many of the pioneers of Tulsa and vicinity, as well as friends from his chosen profession.

In the passing of this good man Tulsa County Medical Society loses one whose sympathies were always with its members, and the community a citizen long loved for his adorable character and loving kindness in the hour of distress.

DR. WALTER LESESNE ANDERS

Dr. Walter Lesesne Anders, for the past eight years a resident of Tulsa, and a member of the Tulsa County Medical Society, passed away December 29th, 1927, at a sanitarium in Guthrie, of paresis.

Dr. Anders was born in Lakewood, Texas, September 26th, 1885, being 42 years old at the time of his death. Graduating from the University of Pennsylvania in 1919, he engaged in general practice in Tulsa, soon after giving special attention to Neurology.

Upon the organization of the Staff of St. Johns Hospital he was assigned this line of service, and in his passing the Staff of St. Johns, and the Tulsa County Medical Society loses a member who will be greatly missed.

Surviving are the widow and four small children. Burial was made in his old home, Palestine, Texas.

C. T. HENDERSHOT, M. D.
Chairman of Necrology,
Tulsa County Medical Society.

EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D.
726 Mayo Bldg., Tulsa

The Insidious, Symptomless, Destructive Effect of Cholesteatoma.—Lillie, H. I., and Stark, W. B.: Surg. Clin. N. Am., 1926, vi, 1359.

Two interesting cases illustrating the insidious, symptomless, destructive effect of cholesteatomatous masses in the temporal bone have been observed in the Mayo Clinic.

The first case was that of a woman 26 years of age who complained of severe pain in the left ear, vertigo, and vomiting of three days' duration. Fifteen years previously she had had an attack of acute purulent otitis media on the left side. The tympanic membrane was thickened and bulging. The hearing was diminished, but the responses of the semicircular canals to stimulation were prompt. The roentgenogram showed a sclerotic mastoid.

Incision of the tympanic membrane was followed by immediate and complete relief of the pain and, after the lapse of a few hours, by cessation of the vertigo. There was a foul-smelling discharge. Diffuse labyrinthitis developed, but the acute symptoms subsided in a few days. At operation, it was found that the tympanic membrane and middle ear were filled with a cheesy cholesteatomatous mass. When this was removed, fistulae were discovered leading to the superior and horizontal semicircular canals. Labyrinthectomy was performed. Uneventful recovery resulted.

The interesting features of this case were: the history of an old otitis media, all but forgotten by the patient; the intact tympanic membrane; the foul-smelling discharge following myringotomy; and the labyrinthine symptoms and finings.

The second case was that of a man aged 55 years. The only complaint was itching in the right ear. There was a small crust attached to the postero-inferior wall of the right external auditory canal just external to the isthmus. When this was removed a fistula was found leading into the mastoid. On being questioned, the patient recalled having had in childhood, an acute otitis media on the same side. The tympanic membrane, the hearing, and the responses of the semicircular canals to stimulation were normal. A roentgenogram revealed an extensive destructive lesion of the pars squamosa.

At operation, an unusually destructive process was found. The cholesteatomatous mass involved the squamous portion of the temporal bone to its limits and the petrous portion to the apex. It had dissected the capsule of the labyrinth, distinctly outlining it. The dura near the apex of the petrous portion was very thin, and the removal of the mass injured the dura, allowing the escape of cerebrospinal fluid, which continued to ooze for seventy-two hours. Convalescence was protracted, but no untoward symptoms developed.

These cases show how insidious and extensive may be the effects of cholesteatoma in the temporal bone in the absence of symptoms. In both cases there was a history of disease of the middle ear and the tympanic membrane was intact. It is highly probable that there had been a defect in the tympanic membrane, but that this had healed, leaving in the middle ear a bud of epithelium.

Cerebrospinal Rhinorrhoea. Johnston, W. H.: Ann. Otol., Rhinol & Laryngol., 1926, xxxv, 1205.

The author reviews twenty cases of cerebrospinal rhinorrhoea which have been recorded in the literature and reports one case of his own. In this condition there is a communication between the brain and the nose. The opening may have been produced by an injury such as a fracture through the base of the skull, decay in the sinuses, or pressure necrosis from a tumor, or it may be a small congenital aperture in which a meningocele has developed and ruptured. In some cases the fluid may escape through a patent craniopharyngeal canal, through holes in the perforated plate which are deprived of nerve fibers, or along the perineural sheaths.

In most of the cases reviewed the spinal fluid pressure was increased as the result of a reduction of the cranial capacity, an increase in the brain volume, or over-production of fluid. The diagnosis is based on the escape from one nostril, usually the left, of a fluid which, on drying, does not stiffen linen, and which appears and disappears suddenly without any subjective symptoms in the nasal fossa. Te fluid reduces copper. When 1 c.cm. of fluorescin is injected into the spinal canal, it is discharged through the nose. The condition must be differentiated from hydrorrhoea and a watery discharge from the antrum.

An Effective Treatment for Sympathetic Uveitis. Verhoeff, F. H.: Arch. Ophth., 1927, lvi, 28.

Verhoeff reports his results from a new treatment for sympathetic ophthalmia. The considerations which lead him to employ it were the following:

1. Horses are not subject to sympathetic uveitis; hence their serum might be antagonistic to the disease.
2. The serum of a horse immunized to diphtheria toxin probably contains enhanced non-specific factors of immunity.
3. It is remotely possible that the antitoxin itself might be antagonistic to the disease.
4. The serum might act as an antianaphylactic if the anaphylactic theory of the disease is true.

Before attempting to draw any conclusions as to the value of the treatment it is important to be as sure as possible of the diagnosis in each case.

In Verhoeff's cases the exciting eye is removed only if it is so badly injured that there is no reasonable chance for the recovery of useful vision. The patient is tested for hypersensitiveness to antitoxin by the injection of one drop intradermally. If there is no reaction in thirty minutes, the test is negative. If it is negative, 20,000 units of diphtheria antitoxin are heated to body temperature and injected subcutaneously or intramuscularly, preferably in the buttocks. If the test is positive, the patient is desensitized by the injection of the antitoxin at intervals of fifteen minutes in divided doses. In the cases of children the dose is reduced in proportion to the body weight; the same dose is then given daily for one week.

If the case is an early one and the ocular congestion has subsided, the injections are discontinued for one week and then given at weekly intervals for two or three weeks. If the case is an advanced one, the injections are continued until marked improvement has taken place or the patient shows severe symptoms of anaphylaxis, when

they are given at weekly intervals each time in divided doses. In cases with marked congestion, sodium salicylate is given in increasing doses, but not to the limit of toleration. Locally, atropin is employed in the usual way. If the pupil does not dilate fully or there is an increase in tension, daily subconjunctival injections of adrenalin are given. If the tension remains over 28 mm. (Souter), iridectomy is done as soon as the condition of the eye will permit. If there is a pupillary membrane which reduces the vision too greatly and the eye has remained quiet for three months or longer, the lens is removed, the patient being kept under the influence of antitoxin by daily injections before and after the operation.

The Treatment of Trachoma by Acetic Acid., Lea, J. A.: Brit. J. Ophth., 1927, xi, 150.

In the treatment of trachoma Lea washes the eye and eyelids with a saturated solution of boracic acid and then drops in a 0.5 per cent solution of cocaine (Darier's solution, which contains adrenalin also). Next he takes an instrument made for him by Weiss (an ordinary tatooing needle will do), dips it into a mixture of equal parts of acetic acid and water, takes care to fill the groove, and, inverting the eyelid, pricks every true granulation and any wavy rolls or fringes of conjunctiva and then washes the eye with a solution of boracic acid again and applies a cold compress to the eyelids for an hour or so.

This is repeated two or three times a week. When the true granulations have disappeared he applies alternatively to the hypertrophied papillae sulphate of copper and a 2 per cent solution of nitrate of silver.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M. D.
717 North Robinson St., Oklahoma City

Myerding, H. W.; Exostosis. Radiology, 1927; VIII, 282.

The author emphasizes the value of roentgenograms taken at right angles to determine the exact size, site, and structure of a tumor of bone. Experienced roentgenologists can accurately diagnose an osteochondroma, commonly termed "exostosis." By means of roentgenograms, valuable information as to the relationship of the tumor to surrounding important structures is obtained and the differentiation of local and generalized types of benign and malignant tumors is possible. The amount of bone and cartilage in the tumors varies considerably. Usually there is a cartilaginous cauliflower-like head surrounded by a bursa which, when injected, suddenly enlarges. This enlargement is not infrequently mistaken for rapid growth of the tumor and sometimes for malignancy.

Myerding has rearranged the classification adopted by the Clinical Pathological Association and the Sarcoma Registry so as to lead from the simple inflammatory lesions to the malignant and metastic groups.

A series of 265 cases of exostosis observed and treated at the Mayo Clinic is reviewed. The diagnoses were verified by pathologists. The average age of the patient was 27 years. One hundred and fifty patients were males. Although heredity is an acknowledged etiological factor in exostosis, attention is directed to the small percentage of the patients in this group who gave a positive history. Only four of them had noted similar conditions in their families. Twelve gave a history of arthritis. Other incidental diseases were rare. Thirty-nine per cent gave a history of injury in the region of the growth, but in the author's opinion, the injury merely called attention to a pre-existing tumor which had not been noted. Myerding believes that heredity and metabolic disturbances in childhood are the most important factors, and that trauma is of less importance than the histories suggest.

The age incidence of exostosis is similar to that of sarcoma of the long bones, practically 80 per cent of exostoses and 75 per cent of bone sarcomate occurring between the ages of 11 and 40. The distribution is also similar. This similarity is shown in a diagram. The tumors in each group arise most commonly about the knee and shoulder, especially in the lower end of the femur and upper end of the humerus. In cases of exostosis reviewed, sixty-five tumors were found in the femur, thirty-four in the tibia, thirty in the humerus and twenty-six in the foot.

The symptoms were usually a painless swelling and deformity. Stiffness of the joints were rare. Forty-five of the patients complained of dull pain which occasionally became sharp. The Wassermann reaction was positive in only two of 189 cases. Usually slight tenderness was elicited on firm pressure. The skin was freely movable because of the formation of bursae. There was no local heat, and venous congestion was rare. The tumors were usually hard and fixed.

According to the roentgenographic findings of exostosis, the cortical point of origin is in the diaphysis near the epiphyseal line, most commonly in the lower end of the femur and the upper end of the tibia and humerus. The base of the tumor varies from a narrow to broad pedicle, and the tumor mass ranges from a bony projection to a pedunculated mass of varying size. The cortex of the bone and the pedicle of the tumor may appear to be continuous. A cartilaginous cap is common; frequently this has a cauliflower-like appearance. Inflamed bursae may produce distended sacs. The tumors may be local or general. There is penetration rather than invasion of tissue. No absorption of bone occurs unless there is pressure on neighboring structures. The periosteum is expanded over the tumor which usually occurs away from the joints.

The treatment of these tumors is surgical when their presence causes deformity or pain. Cauterization of the base and the use of a rubber tissue drain is advisable. In cases of single tumors, the prognosis is good. Of the patients heard from after being dismissed from observation, 75 per cent reported themselves cured. There was no surgical mortality.

Frieberg, M. H.: Physical Therapy and its Relation to Orthopedic Surgery. J. Am. M. Ass., 1927, LXXIX, 728.

Frieberg calls attention to the present haphazard and inefficient use of physical therapy and suggests how it may be corrected.

The advent of heat baths, electrotherapeutic apparatus, and various forms of light instruments has tended to divert attention from the older forms of physical therapy and, to a more alarming degree, has lessened expertness in the

use of massage, gymnastics, and general physiological training.

There is a constant tendency to substitute expertness for a confusion of apparatus. Frieberg insists that physical therapy and apparatotherapy are not synonymous. Most of the apparatus now employed is good and of value under the proper conditions, but it is rare to find that those using them or prescribing their use have more than a superficial knowledge of the relationship of the physical therapeutic agent to be employed and the physiological and pathological changes to be treated.

Some of the most important methods included in the term, "physiotherapy," cannot be supplanted by the use of any of the apparatus now known.

Courses of instruction given in mercantile establishments to increase the sale of certain types of apparatus are not acceptable substitutes for training in medical schools or hospitals, either for the physician who is to direct the treatment or for those who are to act under his direction.

None of the so-called drugless cults is to be regarded as a substitute for it.

It is important that the principles of physical therapy in its modern sense be a part of the education of the student of medicine. The medical student should have at least a minimal amount of training in its application.

A more numerous personnel, thoroughly trained in the practical application of physical therapy in its various branches, should be at the service of the medical profession.

In discussing a personnel to perform the practical part of this work, Frieberg suggests that the nurse is best qualified to select physical therapy as a field for postgraduate specialization.

TUBERCULOSIS

Edited by L. J. Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Bilateral Pneumonthorax. Thomas J. Kinsella and P. M. Mattill. Amer. Rev. of Tuberculosis, Dec., 1927.

This is a report of 28 cases with the following results: Seventeen have obtained a more or less satisfactory collapse and have derived some benefit from the treatment. Five received a fair degree of collapse but no benefit, and six, although free space was found, did not obtain collapse of sufficient degree to be of value. Among the 17 who derived some benefit from the treatment, 10 have lost their positive sputum, 3 after the primary and 7 after the secondary collapse, the majority ceasing to expectorate.

Indications: (1) Extension or reactivation of disease in the relatively good contralateral lung. (2) Hemoptysis. (3) Relief of extensive bilateral disease.

Complications: (1) Clear effusions ensued in 17 patients. (2) Tuberculosis empyema occurred in 2 patients. (3) Accidental pneumothorax from puncture of the lung and subsequent leakage of air into the pleural cavity and extensive collapse of the lung occurred in 2 patients. (3) Spontaneous pneumothorax occurred in 2 patients. (4) Mediastinal hernia occurred twice.

The procedure is safe if reasonable care is exercised. It is not attended by discomfort to the patient. The operator should be experienced in the administration of pneumothorax. Institutional care with strict bed rest and frequent fleuroscopic and roentgenographic control is essential. Frequent refills are necessary to maintain an even compression. Refills should not be done on both sides the same day.

Purulent Tuberculous Effusions in Artificial Pneumothorax. John N. Hayes; American Review of Tuberculosis, Dec., 1927.

During the period to January 1, 1927, the author has induced some compression in 151 patients with pulmonary tuberculosis, divided into stages as follows: Minimal, moderately advanced, 11 and far advanced, 139. The empyema cases number 32 or 21 per cent of the total. All occurred in the far advanced stages.

Riviere says that empyzema is less likely to occur in cases with small pockets which was confirmed in this series. Nineteen cases of empyema developed where there was 76 to 90 per cent compression. Serous effusion bears a grave relation to empyema in artificial pneumothorax. In this series 93 had serous effusion and 32 had empyema.

In treating these cases Hayes advises frequent aspirations of the pus replacing with air during the operation. The pleural cavity is washed with an antiseptic solution. He advises thoracoplasty in every patient with bronchial fistula at its very onset, if the previous general reaction will warrant it.

The Temperature Pulse Ratio in Chronic Pulmonary Tuberculosis. C. C. Anderson. American Review of Tuberculosis. December, 1927.

In chronic pulmonary tuberculosis the pulse rate is higher in proportion to the temperature than is usual in infectious diseases. The pulse temperature ratio appears to be of value from a diagnostic standpoint and as an index to the clinical conditions of the patient. The pulse rate appears to be a more delicate index of toxemia than the temperature.

The Leucocytes of the Blood in Tuberculosis: An Interpretation of the Leucocytic Picture Based on the Pathogenesis of the Disease; E. M. Medlar and G. J. Kastlin. American Review of Tuberculosis, December, 1927.

This includes a study of 48 cases with the following conclusions: (No case of incipient or suspected tuberculosis is included)—The mononuclear leucocyte plays the chief role in the formation of the primary mononuclear or epithelioid tubercle. If the infection is at this point counteracted to such a degree that healing occurs with destruction of the tubercle bacilli, there is then a retrogression of the inflammatory exudate. During the healing stage lymphocytes infiltrate the tubercle. Eventually the inflammatory cells disappear and a small scar remains.

If the mononuclear leucocytes are unable to combat the infection successfully they undergo necrosis. At this stage there appears to be produced quite constantly a type of injury which attracts the neutrophiles. The accumulation of these cells gives rise to suppuration. If the infection is in such a location that the pus can be discharged to the surface, ulceration or cavity

formation occurs. If enclosed, a "cold abscess" develops.

Following the appearance of caseation the neutrophiles are not further attracted to the area. Mononuclear leucocytes and lymphocytes are attracted in large numbers. There is gradual encapsulation of the area and organization as the caseous material is removed. If the caseous material is not removed sufficiently, then calcification may occur. The end stage of such a lesion is an encapsulated fibroid or calcified tubercle with little or no inflammatory exudate present.

Analysis of the 46 cases studied shows the following facts: Every case that died, regardless of the tuberculous lesions found at autopsy, showed a consistent leucocytosis with a high percentage of neutrophiles, a low percentage of lymphocytes, a variable percentage of mononuclears with a tendency toward an increase, and often an increase in percentage of eosinophiles and basophiles. The total count varied from 9,000 to 50,750.

An increase of neutrophiles and mononuclears is an indication of spread of infection and formation of new tubercles which go to abscess formation. An increase of lymphocytes and mononuclears with little or no increase of neutrophiles, indicates good repair with little or no abscess formation, and hence a good prognosis.

If, after a reversal from a septic to a nonseptic picture, the individual develops a trend toward a septic picture on exercise, a clinical break is foreshadowed.

UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D.
1010 Medical Arts Building, Oklahoma City.

CLIPPINGS FROM UROLOGIC AND CUTANEOUS REVIEW

Keep your intravenous needles sharp by frequent honings on an oil stone.

We all have the common failing that we do not follow up our cases long enough.

A syphilitic roseola can be detected a day or two earlier under quartzlight than under daylight.

Stones in Prostates and Seminal Vesicles—John L. White, (Texas State Journal of Medicine, 1928,) says that a review of the literature indicates that stone in the seminal vesicles is a very rare condition, a report of only one case having been found. In all obscure cases, and in those resistant to the usual amount of good treatment for seminal vesiculitis and prostatitis, an X-ray examination should be made. A correct diagnosis in these cases will save the patient much suffering and useless treatment. The treatment indicated is usually surgical removal.

Persistent or Recurrent Pyuria in Infants—J. M. Venable, (Texas State Medical Journal), emphasizes the point that persistent or recurrent pyuria presents a definite hazard that is twofold, immediate and future, and that our best efforts at diagnosis and treatment are fully warranted. The author believes some stubborn adult cases begin in infancy. Urologists working with children have found the same disease and anatomical deformities in children as exists in adults, such as hydronephrosis, ureteral strictures and kinks, calculi, and bladder deformities; any one or more of these may be the cause of a persistent or recurrent pyuria. Therefore, before a cure can be effected, it must be known definitely whether the pyuria is vesicle or renal in origin, and to what it is due. Relief of symptoms does not mean a cure; frequent and careful urinalyses are necessary, and more reliance and final judgment should be placed on the examination of catheterized specimens.

Syphilis of the Upper Respiratory Tract—M. Hajek in La Medicine Germano-Hispana-Americana, (No. 7, 1927), emphasizes the fact that primary and secondary syphilis of the upper respiratory tract produces no intense lesions in those parts, and that early syphilis of the upper respiratory tract responds to internal treatment without the need for local therapy or surgical intervention. Late syphilis, however, can produce cicatricial stenoses and the destruction of certain organs having a vital relation to respiration. For these late results of syphilis, surgical intervention is often necessary.

Syphilitic Meningitis.—H. D. Lloyd in the Boston Med. and Surg. Jour., for September 29, 1927, analyzes nine cases of syphilis of the meninges. Headache occurred in eight, vomiting in two, stiff-neck in six and fever in seven. Only two cases showed a Kernig sign. In seven cases the knee-jerk was normal. In seven cases the manifestations occurred in the first year of the disease, in one, not until sixteen years after the infection. One case was congenital in origin. The author believes that lumbar puncture and the administration of the Swift-Ellis serum by the lumbar route, or in severer cases either by cisterna puncture or intraventricular puncture, offers the best prognosis. Only one of the nine patients died.

"Prostatis Secondary to Furunculosis."—"Grandinearu, (Strasbourg Medical, No. 20 for 1927), gives five practical observations of importance. The disorder may be present during the course of a furunculosis, or may not become manifest until after the furunculosis was cured for some little time. Traumatism by bicycle riding or constant riding in an automobile may operate as predisposing causes. The author considers that the disorder may be set up by hematogenous metastasis, and in some cases by a reno-vesical invasion, or an ascending uretero-caralicular infection. The symptomatology is that of acute prostatitis in general. He divides the cases into two types. In the first group the prostatic localization constitutes a simple episode in the evolution of the staphylococci septicemia; an episode which may be the first chronologically, and upon which may supervene other evidences of staphylococci activity. In the second group the symptoms of septicemia are absent or scarcely detectable, the prostatic localization dominating the picture, though it may nevertheless be the primary seat.

The prognosis is embarrassed by the disease not always being promptly recognized. Whenever there is the least possible indication, one should not fail to employ microscopic examination and culture of the blood and urine.

The treatment is naturally directed to meet

various contingencies. Cold lavages and enemas, sedative suppositories, incision and drainage, and vaccine therapy. The latter may alone prove sufficient. The author considers that it is without doubt, indicated for general septicemia, but that its complex action does not always adapt it for systematic use."

The important thing, it seems, of this article is that the profession in general is beginning to realize that all prostatic infection is not directly due to G. C.

"Simple Incrusted Ulcer of the Bladder."—"Dr. Michael Sirovicza in Zeitschrift fur Urologie, discusses the question of simple incrusted ulcer and its differentiation from other vesical ulcers. He describes four cases cured by operation, this consisting of partial resection combined with curettage. He states that these ulcers are not secondary to an inflammation of the bladder, but that where inflammation is present, it is secondary to the ulceration, and he discusses the possible role of embolism and thrombosis in their etiology. He believes also, that normal urine contains enzymes that are capable of digesting a disease's portion of the mucous membrane, thus bringing ulcer of the bladder into the same class as ulcer of the stomach. He points out that bad teeth, tonsils, and sinuses, may serve as base of operations for infecting micro-organisms nad that these should always be investigated. His insistance upon the incrusted ulcer as a distinct pathological entity does not appear to us quite satisfying, as he fails to give us enough diagnostical points differentiating it from ulcer secondary to inflammation, and from the elusive ulcer which has excited so much interest among American Urologists in recent years. Also, his description recalls a rare type of carcinomatous ulcer sometimes seen in the bladder where there is no elevation or depression, but merely an incrust or necrotic surface with a tendency to bleed. Such cancers are rather slow of growth and may show a tendency to improve after operation, but it is not to be hoped that they can be cured by resection or currettage.

The whole question of the classification of bladder ulcers, and their differential diagnos's cystoscopically is difficult and insufficiently discussed everywhere. We should be on our guard against placing a discovered ulcer too quickly, in the category of simple incrusted ulcer. Much work needs still to be done on this subject."

Dr. O. Clark reports six cases in the past three years with diabetes in whom the only causetive factor he could determine was syphilis. No veneral history was present but syphilis was satisfastorily demonstrated. This, in a measure, gratifies the writer in that a number of years ago the author reported two cases of the same type, at that time merely suggesting that syphilis might be the cause of the disease. The report was received with a certain degree of amusement but since that time in addition to the above cases reported, I think the Medical Proftssion have begun to at least think of it as an etiological factor. It might behoove us to keep our minds open on this at least.

Tissue Regeneration in Bladder.—Drs. H. L. Kretschmer and Barber report an interesting series of experiments on bladder regeneration following r-section. Most of their work was done on rabbite, a few dogs being used. They go on to show that the bladder very quickly regenerates and becomes nearly normal in capacity. Their summary is as follows:

1. Extensive resection of the bladder is followed by the formation of a new bladder.
2. The newly formed bladder fulfills completely the function of the old bladder in that it is capable of retaining the urine for many hours and of discharging urine in the normal manner.
3. Incontinence as a permanent complication does not follow even the widest type of resection.
4. From the histologic picture and its close resemblance to the normal bladder, it would appear that the newly formed bladder is the result of regeneration.

RESULTS OF OPERATION FOR UNDESCENDED TESTIS

In a series of fifteen cases of undescended testis, reported by J. S. Eisenstaedt, Chicago (Journal A. M. A., April 30, 1927), four of which were bilateral, all testes were satisfactorily brought down into the scrotum. In the ten patients returning for follow-up examinations, all showed a growth of the testis proper for the age of the boy. Hernia was encountered in all cases, in several of which there were rather insignificant sacs. Eisenstaedt says that there are several factors operative in the causation of maldescent of the testis. The most important probably are the many fibrous adhesions to the cord and within the cord which are always present. Proper division and dissection of these strands, and the freeing of the cord within the internal abdominal ring, will permit the testis to be mobilized to a satisfactory level within the scrotum. The total blood supply can and should be conserved. Any severance of the blood vessels to the testis may result in atrophy of greater or lesser degree. Anchoring the testis by any of the several methods is not desirable or necessary. The results in those patients observed from one to ten years after operation were uniformly good.

DANGERS ATTENDING INTRASPINAL TREATMENT WITH MERCUROCHROME

Earl B. McKinley and Margaret Holden, New York (Journal A. M. A., April 30, 1927), call attention to the dangers attending the intraspinal administration of mercurochrome-220 soluble. Quite incidental in the course of their study on experimental encephalitis in rabbits, they have found that this chemotherapeutic agent is extremely toxic for the nervous system. According to various reports in the literature, doses as high as 5 mg. of mercurochrome per kilogram of body weight may be used intravenously in rabbits without untoward results. In the authors' experimental work, convulsions and death followed the intraspinal injection of 2.4, 4.8 and 12 mg., respectively, in normal rabbits of 2.5 Kg. within one minute following the injection. The largest of these doses (12 mg.) did not produce any reaction when given intravenously. Five-tenths milligram of mercurochrome injected intraspinally into a normal rabbit produced convulsions and death of the animal within ten minutes, and half of this dose (0.24 mg.) when given intraspinally produced convulsions within a few minutes, and the animal lived for an hour and a half. It appears from these experiments that the introduction of mercurochrome intraspinally is followed by grave consequences, even when doses far less than a therapeutic dose are administered.

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